

CLAIMS

What is claimed is:

1. A method for routing data packets in a wireless network at a node i ,

5 comprising:

selecting a neighbor p as the next hop in a route from node i to destination j if

(i) the path from neighbor p to destination j does not include node i and does not repeat any node, and

(ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p ,

where D_{yp}^i is the distance value of the route from node i to node y through

neighbor p and D_{yx}^i is the distance value of the route from node i to node y through neighbor x .

2. A method as recited in claim 1,

wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

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3. A method as recited in claim 1, further comprising:

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

4. A method as recited in claim 1, further comprising:

sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

5. A method for routing data packets in a wireless network at a node i , comprising:

(a) selecting a neighbor p as the next hop in a route from node i to destination

j if

(i) the path from neighbor p to destination j does not include node i and does not repeat any node, and

(ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p ,

where D_{yp}^i is the distance value of the route from node i to node y through neighbor p and D_{yx}^i is the distance value of the route from node i to node y through neighbor x ;

(b) wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(c) wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

6. A method as recited in claim 5, further comprising sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

7. A method as recited in claim 5, further comprising:

sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

5 8. A method for routing data packets in a wireless network at a node i ,
comprising:

(a) selecting a neighbor p as the next hop in a route from node i to destination
 j if

- (i) the path from neighbor p to destination j does not include node i
and does not repeat any node, and
- (ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the
path from destination j to neighbor p ,

where D_{yp}^i is the distance value of the route from node i to node y through
neighbor p and D_{yx}^i is the distance value of the route from node i to node y
through neighbor x ; and

(b) sending updates to a routing table if

- (i) a node discovers a new destination with a finite and valid path to
the destination, or
- (ii) a node loses the last path to a destination, or
- (iii) a node suffers a distance increase to a destination.

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9. A method as recited in claim 8,
wherein a first node considers a second as its neighbor if it hears update
messages from said second node; and
wherein said first node no longer considers said second node as its neighbor if
5 said first node cannot send data packets to said second node.

10. A method as recited in claim 8, further comprising:
sending a unicast routing table update from a node to a neighbor that
sends it a data packet, if the neighbor is upstream from it towards the destination;
and
40 sending a unicast routing table update from a node to a neighbor that
sends it a data packet when the path implied by the neighbor's distance table
entry is different from the path implied by the node's routing table.

11. A method for routing data packets in a wireless network at a node i ,
comprising:
15 (a) selecting a neighbor p as the next hop in a route from node i to destination
 j if
(i) the path from neighbor p to destination j does not include node i
20 and does not repeat any node, and
(ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the
path from destination j to neighbor p ,

where D_{yp}^i is the distance value of the route from node i to node y through neighbor p and D_{yx}^i is the distance value of the route from node i to node y through neighbor x ;

(b) sending a unicast routing table update from a node to a neighbor that
5 sends it a data packet, if the neighbor is upstream from it towards the destination; and

(c) sending a unicast routing table update from a node to a neighbor that
sends it a data packet when the path implied by the neighbor's distance table entry is
different from the path implied by the node's routing table.

12. A method as recited in claim 11,

wherein a first node considers a second as its neighbor if it hears update
messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if
said first node cannot send data packets to said second node.

13. A method as recited in claim 11, further comprising
sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the
destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

14. A method for routing data packets in a wireless network at a node i , comprising:

(a) selecting a neighbor p as the next hop in a route from node i to destination

5 j if

(i) the path from neighbor p to destination j does not include node i and does not repeat any node, and

(ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p ,

where D_{yp}^i is the distance value of the route from node i to node y through neighbor p and D_{yx}^i is the distance value of the route from node i to node y through neighbor x ; and

(b) sending updates to a routing table if

(i) a node discovers a new destination with a finite and valid path to the destination, or

(ii) a node loses the last path to a destination, or

(iii) a node suffers a distance increase to a destination;

(c) wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(d) wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

15. A method as recited in claim 14, further comprising:

5 sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

10 16. A method for routing data packets in a wireless network at a node i , comprising:

(a) selecting a neighbor p as the next hop in a route from node i to destination

j if

(i) the path from neighbor p to destination j does not include node i and does not repeat any node, and

(ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p ,

where D_{yp}^i is the distance value of the route from node i to node y through

neighbor p and D_{yx}^i is the distance value of the route from node i to node y

20 through neighbor x ;

(b) sending a unicast routing table update from a node to a neighbor that

sends it a data packet, if the neighbor is upstream from it towards the destination; and

(c) sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table;

5 (d) wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(e) wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

10 17. A method as recited in claim 16, further comprising

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

15 18. A method for routing data packets in a wireless network at a node i , comprising:

(a) selecting a neighbor p as the next hop in a route from node i to destination

20 j if

(i) the path from neighbor p to destination j does not include node i and does not repeat any node, and

- (ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p ,

where D_{yp}^i is the distance value of the route from node i to node y through neighbor p and D_{yx}^i is the distance value of the route from node i to node y through neighbor x ;

- (b) sending updates to a routing table if

- (i) a node discovers a new destination with a finite and valid path to the destination, or
- (ii) a node loses the last path to a destination, or
- (iii) a node suffers a distance increase to a destination;

(c) sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

(d) sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

19. A method as recited in claim 18,

wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

different from the path implied by the node's routing table;

(e) wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(f) wherein said first node no longer considers said second node as its
5 neighbor if said first node cannot send data packets to said second node.

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